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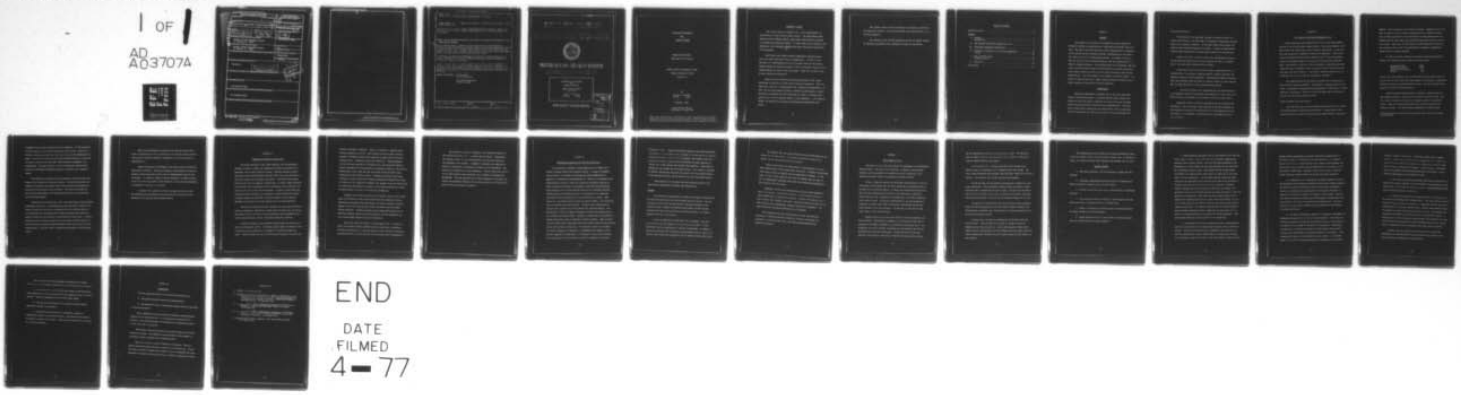

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DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE: SUBCONTRACT MANAGEMENT AND LESSONS LEARNED

STUDY PROJECT GOALS:

To investigate and report a major subcontract management problem. To present the lessons learned by the program office and the prime contractor in solving the problem.

STUDY REPORT ABSTRACT:

For a number of years, a major Air Force space program was faced with the problem of having to procure a critical subsystem from a sole source subcontractor. The primary reason for his monopoly was a proprietary process used in his commercial business. The cost associated with meeting the vendor's ever increasing demands was unacceptable and dictated management action.

A prototype competition was conducted and resulted in the selection of a new vendor. Associated with this was improved technology, lower cost and better response to schedule requirements.

The original subcontractor sued the government and lost. The litigation did however, provide some important "lessons learned." Described in the report is the evolution of the problems, relation between the prime contractor and the government in arriving at a solution, the litigation and lessons that were provided.

SUBJECT DESCRIPTORS: Subcontracts
Program Management

Subcontract Management
Lessons Learned

NAME, RANK, SERVICE	CLASS	DATE
Lt Col Ernest W. Rousseau, USAF	PMC 76-2	November 1976

DEFENSE SYSTEMS MANAGEMENT COLLEGE

PROGRAM MANAGEMENT COURSE

INDIVIDUAL STUDY PROGRAM

SUBCONTRACT MANAGEMENT
AND
LESSONS LEARNED

STUDY PROJECT REPORT
PMC 76-2

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SUBCONTRACT MANAGEMENT

AND

LESSONS LEARNED

Study Project Report

Individual Study Program

Defense Systems Management College

Program Management Course

Class 76-2

by

Ernest W. Rousseau
Lt Col USAF

November 1976

Study Project Advisor
Maj Eugene J. Clare, USAF

EXECUTIVE SUMMARY

This report addresses problems with a major subcontractor as experienced by a high priority space program. The subcontractor manufactures optical sensing devices, using proprietary process, primarily on a fixed price commercial market. In 1958, under direct funding by the government, this contractor investigated space surveillance application of this process.

Until 1966, this vendor provided experimental sensing devices both as a prime contractor and as a subcontractor. In 1966, he was selected, as a subcontractor for the operational phase of the program. Special waivers of accounting practices had to be obtained from Air Force Systems Command in order to use his process. There was, in other words, no other practical alternative.

Aside from his questionable accounting practices, this vendor maintained an arbitrary attitude toward the prime contractor. Also, his costs were rising at an unacceptable rate, inflation notwithstanding. In 1973, the Air Force program director, considering advancements in state-of-the-art, persuaded the prime contractor to conduct a prototype competition for a vastly upgraded version of this subsystem. A far superior vendor, in terms of cost schedule and performance emerged from this effort.

The original vendor sued the government on the basis of arbitrary and capricious treatment, since the government had established him as a "national resource."

The litigation that followed provided a source of lessons learned in subcontract management and a favorable outcome for the nation.

TABLE OF CONTENTS

SECTION I

Purpose

The purpose of this report is to describe a major subcontract management problem as experienced by a high priority military space program. The report covers the evolution of the subcontractor's involvement in the program and the resultant attitude, consequential to his being a sole source supplier of a proprietary process. An attempt is made to show the need for prime contractor resolve, with the program office, to effect a workable solution. The objective here is to illustrate that the prime contractor should manage the subcontractor; government representatives should always be sensitive to the privity between a prime and his subcontractor. The final purpose is to present the lessons learned. The source of these lessons was a rather lengthy litigation following a prototype competition managed by the prime contractor.

Introduction

Subcontract management is probably one of the least understood facets of program management. A delicate balance exists between the government acquiring agency, exercising his right to be kept informed versus exercising contract influence over a subcontractor. Care must also be exercised to insure that the subcontractor does not purposely force the government into the role of umpire in his relationship with

the prime contractor.

The situation to be described involves a relatively small sole source subcontractor. For many years, he possessed a proprietary process used in his commercial business. In the early 1960's this process was found to have potential application in space. A number of experimental efforts indeed verified the favorable space potential of this process.

Through the 1960's and early 1970's this subcontractor developed the attitude that his role in the space program was that of a national asset. His cost growth reflected this attitude.

By the end of 1973, the situation became so aggravated that the program office, in seeking an alternate source, funded a prototype competition through the prime contractor. The prototype hardware specifications were purposely made difficult to achieve in order to force advancement in state-of-the-art of the technology being pursued.

The final outcome of the competition was the qualification of a new supplier, capable of delivering the subsystem at a unit cost of 4.2 million dollars as compared to 12.3 million from the original source.

No purpose would be served by identifying the two competing subcontractors. For this reason I will identify the original supplier of the subsystem in question as subcontractor A and the competitor as subcontractor B. The hardware in question will be referenced to as the sensing device.

SECTION II

The Problems and Factors Leading Up to It

This scenario may sound familiar but it was a very major problem for one of our critical space weapon systems. The program started in the early 1960's and evolved into a major national space asset. In the late 60's, the program was committed to operational deployment. Some of the critical advanced state-of-the-art systems however, were only upgraded, using the development phase contractors for the operational phase program. The producer of the most critical subsystem, recognizing his sole source monopoly, developed a rather arbitrary attitude toward his prime contractor and the governement. His mode of operation became one of indifference and to put it bluntly, "performance blackmail."

The program office and the prime contractor had no choice but to meet his ever increasing demands. The hardware in question was not very large. The physical dimensions were approximately 6 inches long, 3 inches wide and 2 inches high. The cost of this unit grew from 4.5 million in 1972 to over 11 million dollars in 1974.

Factors Leading up to the Problem

One would naturally ask how he could get away with this, in light of rigid government controls and surveillance. Dating back to 1963, government audit agencies had questioned this subcontractor's accounting

methods. The criticality of the hardware, however, compelled the government to provide a waiver called: predetermination of accounting policy. This in effect provided for the allowability of costs questioned by the Defense Contract Audit Agency and restricted government access to accounting records. There was, in other words, no other practical alternative. The government had to meet the subcontractor's demands or jeopardize a system vital to national security.

In order to better illustrate the meaning of the subcontractor's demands, the following actual overhead rates are quoted.

Engineering labor	200%*
Manufacturing labor	375%*
General and Accounting	22%
Profit	15%

Neither the prime contractor nor the government had any control over the direct costs to which these rates were applied, for example, an apprentice draftsman's wages were 22,000 dollars per year. One chief scientist was earning in excess of 200,000 per year.

Earlier attempts had been made to introduce a second source for the sensing subsystem. These attempts failed for various reasons. The first attempt consisted of funding a prototype program at a potential vendor. This was accomplished by directing the prime contractor to manage the effort. The subcontractor selected was a totally owned

*Most management was included in direct labor and is not part of these overhead rates.

subsidiary of the prime contractor's major competitor. At the completion of this program, the prototype hardware did show promise, results were however, inconclusive since his capability had never been demonatrated in space. This was the rationale used by the prime contractor in convincing the program director that the risk, from the prime's standpoint, was unacceptable. The only terms for use of this potential second source would be as Government Furnished Equipment or possibly, as a directed source.

The hardware in question and its interaction with the overall end items was too complex for component breakout. The prime contractor succeeded in convincing the program office that changing subcontractors at this point was too great a risk to accept. The follow on buy went to the original subcontractor, the program office having to live with his ever increasing demands.

After delivery of these four units, the subcontractor again demanded sustaining funds until a new production buy was initiated. Direction for three new satellites was only a few months off so his demands were met. In the meantime the government and the prime contractor had developed a means of qualifying the potential second source at minimal risk. Parallel production at the existing source and the new source would be initiated. Two units would be procured from the current source and one unit from the second source. Sufficient time to recover was available if this approach failed.

Again, the subcontractor was able to turn the tide in his favor. Under the pressure of an all or nothing bid, the program office relented and the prime contractor awarded a subcontract for all three units to subcontractor A.

During this period of performance, cost kept rising and technical demonstration declined. The prime contractor was beginning to loose performance incentive because of this lack of responsiveness from his subcontractor. It seemed as though the prime contractor, at least a number of his functional departments, were beginning to side with the government, in attempting to qualify a new source.

In October 1973, production effort was again coming to an end. The intimidations and demands to be sustained were once again in the forefront of the program office problem charts.

SECTION III

Government-Contractor Relationship

The prime contractor, albit under coercion from the government, decided to conduct a "shoot out" competition between the existing subcontractor and the other potential source. Although corporate resolve was geared toward impartiability, factions within the prime contractor's plant were motivated to sabotage the project. This motivation stemmed from the fear that the competing subcontractor, a totally owned subsidiary of the prime's major competitor, was the proverbial foot in the door for their competition to take over the program. In spite of this underlying problem the prime contractor did establish a viable competition program. A program manager was appointed, reporting directly to the corporate president and serving as the only contact point with the government.

The Air Force program director, sensitive to the prime contractor's concern, responded by appointing a single point of contact for the project. The project officer was given complete authority and was answerable only to the program director and the Procurement Contracting Officer.

Security procedures were established both within the contractor's plant and the program office. The entire project began to achieve an aura of sensitivity that labeled it as "project X" to which reference was taboo. Specific pains were taken by the project managers to maintain and

enforce this mode of operation. Effort to establish a realistic competition appearance paid off. Both subonctractors had their internal sources of information within the contractor's plant and the Air Force Program Office. Information leaks were turned off. These procedures not only reduced compromise of information but also served to establish a major stronghold for the government in upcoming litigation. The loosing subcontractor would later make the claim that he did not know he was "competing for the follow on effort." Numerous individuals were later available to attest to his ever incessant demands and requests for status information on his competition standing. His attempt to use his unawareness of competition proceedings as leverage in the courts would prove a source of embarrassment throughout the litigation proceedings.

Because of the delicate nature of the project, both from the standpoint of criticality of the sensing device and the potential political implications associated with the outcome, the prime contractor's project manager and the Air Force project officer developed close and candid working relations. Informal procedures were established whereby all information exchange between the prime contractor and the government had to be accomplished through these two individuals.

The formal competition began in early January 1974. In order to derive the greatest benefit possible from the competition, performance criteria was purposely set high with design to cost features and schedule constraints as the means of controlling the subcontractor's expenditures.

The request for proposal contained a well defined statement of work and specification for the improved sensing device. Requirements for program reviews, at six week-intervals, for the prime contractor and government were included. A bidder's conference was conducted to provide an opportunity to question any aspect of the competition. The project was managed by the prime contractor. The Air Force role, as far as the subcontractors were concerned, was to observe the competition proceedings. This was specified in the work statement to the prime contractor and emphasized verbally by the program director, the PCO and the project officer on numerous occasions.

SECTION IV

Contractor Performance in A Fly-Off Competition

The competition provided a unique opportunity to compare each vendor's problem solving and technical ability. A couple of examples are provided in an attempt to illustrate how badly subcontractor A appeared in comparision to subcontractor B. Earlier in the program, both subcontractors elected to solve the reflection suppression problem by using non-reflecting masks, on the modules, that had photo delineated holes whereby only the lead sulphide would react to incident radiation. (Understanding the technical aspects of the problem is not important. The problem solving methodology is the point being addressed). Both competitors initiated paralled efforts at outside vendors. By coincidence the same outside firms were selected. By March 1974, subcontractor B realized that neither source could produce the required quality. Subcontractor B, within six weeks, developed, in-house, the capability that far exceeded the outside effort. Meanwhile, subcontractor A continued to expend considerable funds to develop an inferior product. When A finally received usable masks, they found that these masks, because of edge defects, caused the detectors to short out. A's solution to this was to double the cement thickness for insulation. Accordingly this caused a thirty percent reduction in sensitivity. A's solution to this was to multiply test results by 1.43 and a promise to solve the problem in the future

production program. During verification testing at the prime contractor, they observed a great deal of non uniformity in subcontractor A's sensing device performance. In the course of testing, for example, they could observe that detector resistance would increase in some, decrease in others, and in some cases would increase then decrease. These factors presented a new concern for the program office. As a result of attempts to optimize the detector chemistry and control the aging characteristics of the detector material, had we fouled up our only guaranteed source?

Subcontractor B on the other hand was producing hardware that demonstrated exceptional uniformity and repeatability.

Outcome

The selection of subcontractor B ended a long saga of difficulties for the prime contractor and the government procuring agency. The competition was fair with the award going to the best performer in all aspects of cost, schedule and technical performance in both the competitive phase and his proposal for the follow on effort. At least it appeared this way on the surface.

I will now address the "acid test" for the project. How often do we casually ask the question: will it stand up in court? In this particular case the opportunity to find out was provided. In addition, the prime contractor and the government participants were to learn a few lessons about subcontract management and its seldom mentioned subtlities.

On 2 August 1974, the prime contractor notified the looser of the outcome of the competition. The looser's immediate reaction was to contact the Air Force SPO director to complain.

This was the first of a long series of communications, responses and rebuttals prior to the actual court activition. Dialogue was exchanged with levels as high as Congress and the Department of Defense. At the time, [I] felt it was easier to live with his demands than to reply to all the departmental inquiries and correct the Senatorial misconceptions that resulted from his letters.

Meanwhile, the Air Force contracting officer was busy discharging some of his duties. The proposal for full scale development of the improved subsystem was received on 15 August. Through some mystique, known only to PCOs, fact finding, DCAA audit, technical comments and negotiations were complete and a supplemental agreement awarded on 2 September. The prime contractor issued his subcontract on 4 September.

The significance of this rapid response is that the courts are reluctant to issueing restraining orders if contracts are already in existance. As was the case, here, work would progress despite the ongoing litigations.

SECTION V

The Litigation Phase

The looser filed a complaint against the government in the Washington District Court. The basis of his claim was: Arbitrary and capricious treatment by the government and competition was not conducted to the maximum practicable extent in accordance with ASPR 7-104.40.'

Filing a complaint against the government was predicated on alleged involvement to the extent that the prime contractor was merely acting as an agent of the procuring agency. A strong case was made that the government and this subcontractor had prior to the competition, sufficient private dealings that irrespective of subcontract, a de facto contractual relationship existed. He further strenghtened his case by attempting to establish an agency rather than a contractual relationship between the prime contractor and the government. In this way, he was able to take legal action in the Federal courts.

Separate motions to dismiss were filed by the prime contractor and the government. Dismissal was requested on the basis that there was no government involvement therefore, no jurisdiction in Federal court. The government was able to further strengthen its case based on the contract provisions with the prime contractor. During the period of the competition, the plaintiff was unable to show any government activity that

was not specifically called out in the prime contract. The very fact that the prime contractor was paid profit for responding to these provisions, negated agency relationship.

On 11 January 1975, a hearing was held in the United States District Court in Washington, D.C. Numerous points were argued. The basic issues described above however, were the major tenets of the court's interest. The outcome was a ruling favoring the government.

The US Attorney who represented the government, thought this case to be significant. The government's right to survey and maintain proper influence over a subcontract was not at issue. The fact that the nature and level of involvement was a matter of contract for profit, materially affected the government's position and the ultimate outcome of the case.

The plaintiff appealed the ruling to the Circuit Court of Appeals. Under the broad interpretation that when public interest warrants, the Administrative Procedures Act, provides that an injured plaintiff may act as a private attorney general.

On this basis, the case was remanded to the District Court for trial on merit. Also granted was the right of document search and deposition upon oral examination. During this process it became abundantly clear to the plaintiff and his attorneys that the prime contractor and the government's actions were in the best interest of the nation and the program.

The documentation which surfaced in the prime contractor's plant and in the program office was overwhelmingly against him. He elected to accept the original District Court decision and withdrew from the case.

Lessons Learned

1. The prime contractor, not the government, manages the subcontract.

2. Government representatives should strive to strenghten the prime contractor's influence over the subcontractor.

3. Privity between the prime and his subcontractor is absolutely essential.

4. The government needs to establish a strong rapport with the prime contractor to influence control of subcontractor.

5. Beware of conveying an apparent agency relationship between the prime contractor and the government.

6. Funded competitions are a viable means of lowering program costs on subcontracted sole source subsystem

1 - When government personnel take it upon themselves to "get that subcontractor in line" they do not realize the possible compromizing situation that is being created. From the testimony presented by subcontractor A, it was obvious that he truly believed his role consisted of a government national asset. This belief evolved through direct involvement with numerous high level government officials in the prosecution of his subcontract. His arbitrary attitude toward the prime contractor was aggravated by his ability to have the prime contractor's direction reversed with a simple phone call to the SPO. Testimony further revealed that this subcontractor used his relationship with government officials as leverage against the prime contractor in cost and performance negotiations. This attitude was so deeply routed that he regarded the competition program as a game that the government was playing to force his price down and to trick him into establishing accepted accounting practices. He refused to realize that the prime contractor had established corporate resolve, regardless of competitive risk, to award the improved sensing device project to the best performer. Cost and schedule being the driving factors of the competition.

2 - Any difference of opinion between government representatives and the prime contractor over subcontractor matters must be resolved in private. The best contribution that a government representative can make in subcontractor to prime relationship is conveying the attitude that the prime is running the show. This is not meant to infer that the

program office relinquishes its overall management responsibility to the prime however. In dealing with the subcontractor, if it becomes obvious that the prime contractor has total program office backing, the subcontractor has no choice; he must demonstrate his commitment to his contractual relationship. Needless to say this also goes a long way toward fostering rapport between the SPO and the prime contractor.

3 - A subcontract is a contractual instrument between two firms. The government has no business interfering with private industry matters. The courts and their attorneys do however recognize the government's right to be informed and to participate with its prime contractor in assessing the technical progress of a project it has funded. The fine line between monitoring a subcontract and managing a subcontractor must be foremost in the mind of the government representatives. The prime contractor has the right to demand that his contract not be preempted by outside influences.

4 - The least controversial approach to government involvement in subcontract management is to "put it in the contract." All major contractors recognize the rights of the procuring agency to have access to all aspects of the product or services it is procuring. Accordingly, the government is seldom challenged for intervening in matters which relate to the contractual relationships between two contractors. This implied right however, seldom stands up in the courts. On the other hand, if the role of the procuring agency is spelled out in the prime

contract, regarding subcontract involvement, strong mutual support develops. Furthermore, if called to the court test, the general disposition of the courts is to seek out the aspects of a complaint that were not part of contractual agreement. In the previously described case, the government had a pre-negotiated role to be played. It was explicitly described in the statement of work.

5 - If I were to claim any government deficiency in this case, it would be the lack of emphasis of the government's non-involvement in the competition. I feel that the point was made in a straightforward manner, but the plaintiff elected to ignore it.

6 - The same principles of prototyping used by the government can be applied to selecting major subcontractors. The competition previously described served a number of purposes. It sustained the then only qualified source of a critical subsystem until a better source could be found. It provided a vehicle for finding this better source. The existing subcontractor was placed on alert that he was in a competitive market. I should point out that although he realized this, his litigation was based on the premise that because of his long standing involvement in the program, he considered himself a national asset rather than a supplier.

Probably the most significant benefit however, was the vast advancement in state-of-the-art that was achieved as a result of the fact paced highly competition oriented project.

The cost benefits of this program are impossible to totally evaluate. I will, however summarize some of the benefits to the nation:

a. The instant or current fiscal year savings on the first unit, after deducting all costs associated with the competition was 6.7 million dollars. This was validated by the Air Force Audit Agency.

b. The out year cost benefit will exceed 30 million dollars, assuming no change in the program.

c. The achieved state-of-the-art improvements enabled an evolutionary upgrade of the current system. This deferred the need for the follow on program by 10 years. Associated cost deferral is in excess of 1.5 billion dollars.

SECTION VI

Conclusions

The most important points in the previous discussion are:

1. The prime contractor manages the subcontractors.

2. The goverment's role in subcontract matters should be specified in the prime contract.

Strict adherence to these principles ultimately caused favorable results for the program office. A non-responsive subcontractor was removed, a much improved product was developed and considerable savings in time and money was realized.

Additonally, cooperation between the program office and the prime contractor improved. His response to program needs and development of a follow-on effort reflected this improved attitude.

There is a need for improved subcontract management. This can only be achieved through contractor resvolve to do a better job. Toward this end, government representatives should strive to strengthen the prime contractor's leverage and avoid acting as a referee in subcontract matters.

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